

PAT-NO: JP02000239818A  
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TITLE: HOT DIP Zn-Mg-Al BASED ALLOY PLATED STEEL TUBE  
EXCELLENT IN WELD ZONE CORROSION RESISTANCE  
PUBN-DATE: September 5, 2000

INVENTOR-INFORMATION:

|                  |         |
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ABSTRACT:

PROBLEM TO BE SOLVED: To prevent the initial generation of red rust in the weld zone of a steel tube by controlling the contents of Mg, Al and Zn in a plating layer of a pre-plated steel tube to specified ranges and moreover incorporating it with small amounts of Ti and B.

SOLUTION: The compsn. of a plating layer in a hot dip Zn-Mg-Al based alloy plated steel tube is composed of, by weight, 1 to 4% Mg, 4 to 10% Al, and the balance Zn with inevitable impurities. Or, 0.002 to 0.1% Ti and 0.001 to 0.045% B are further incorporated therein. Mg promotes the formation of Mg-contg. Zn based corrosion products high in protecting properties on the plating layer and reduces the corrosion rate of the plating layer itself. Moreover, a part of the corrosion products flows into a bead part to suppress

the corrosion of the bead part. Al in the plating layer is hardly eluted from the plating layer, and Zn-Al based corrosion products are formed on the lower layer of the Zn corrosion products high in fluidity. By the addition of Ti and B, the formation of a Zn<sub>11</sub>Mg<sub>2</sub> phase damaging its surface appearance can be suppressed.

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